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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/525,137

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Dirk Herbert Teeuw

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

PRONE, JASON D

ART UNIT

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3724

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/525,137	Applicant(s) TEEUW ET AL.	
	Examiner Jason Daniel Prone	Art Unit 3724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 6, 7, 9-11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri (3,835,537) in view of Wong et al. (5,776,615) and Curry et al. (3,900,636).

With respect to claims 1, 2, 19, and 20, Sastri discloses a cutting member (razor blade 20) having a metal substrate which is provided with a cutting edge (tapered portion 30 shown in figure 2), at least a portion of the substrate including the cutting edge being provided with a coating (outer chromium coating 36, see column 5 lines 46-49), the coating is layered on the substrate in multiple coats as shown in figure 4. Further, Sastri discloses the coating comprising an implanted layer of Cr (36) that is implanted into the metal substrate. Examiner notes that the word "implant" merely means to fix firmly to (see dictionary.com). The blade of Sastri clearly has Cr layers which are fixed to the blade body. Sastri does not disclose the coating comprising carbon, characterized in that the coating comprises a plurality of stacked pairs of layers, each pair comprising a first layer mainly comprising carbon and a second layer mainly comprising a metal, and each pair having a thickness between 1 and 10 nm. Examiner

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notes that Sastri does disclose the coating comprising an implanted layer of Cr that is implanted into the metal substrate.

Wong et al. discloses a process for making superhard composite materials out of carbon and metal alternating layers for use in cutting devices. "The composite material may comprise a plurality of alternating layers comprising the carbon nitrogen compound each deposited on a respective layer of metal or metal compound to form a multi-layered, superlattice coating wherein each layer is ion bombardment densified during deposition and each layer has a thickness in the range of about 0.5 nm to about 100 nm (nanometer). Such a coating exhibits a hardness substantially exceeding (e.g. 2 times) the hardness of each individual layer in homogenous form" (column 4 lines 4-12).

Wong et al. also discloses that chromium is an acceptable metal to use as it falls within group VI of the periodic table of elements (see column 3 line 60). In the setup disclosed by Wong et al, the metal/carbon pair of a layer has a thickness from 1-200nm, which overlaps sufficiently with the range 1-10nm. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to replace the solely chromium layers of Sastri with an alternating carbon nitrogen and chromium layered pair setup in view of the teachings of Wong et al. in order to create a harder cutting surface. Further, with respect to claim 2, examiner notes the second layer in this setup is a Cr layer.

Examiner notes that the first layer, in the above modified setup includes carbon (as CN_x as taught by Wong et al.). Although the entire layer is not in the elemental form of carbon, carbon in the elemental form exists just by the nature of the element carbon

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being present. Further, because the claim begins with the phrase “comprising,” the layer is not limited to carbon and carbon alone.

With respect to claim 3, Wong et al. discloses using the metal layer having a thickness ranging from 0.5 to 100 nm. 1.6 to 2.0 nm is fully encompassed by this range.

With respect to claims 6 and 7, Sastri in view of Wong et al. discloses that the total thickness of material added to the substrate by layering has a thickness of at least 400 Angstroms (40 nm; abstract of Sastri). No specific size of the total layer is given. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide enough layered pairs so that the thickness of the coating was in the range of 80 - 120 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claim 9, the modified apparatus of Sastri discloses the coating having a hardness approximately four times the hardness of Cr. Examiner notes that hardness is measured in many different ways because the term hardness can mean anything from resistance to shape change to resistance to scratching. As best understood, the superlattice structure of Sastri in view of Wong et al. results in a layered structure having a hardness of approximately four times that of chromium.

With respect to claims 10 and 11, the modified apparatus of Sastri discloses the coating having a resistance to wear which exceeds a resistance to wear provided by a coating of diamond-like carbon. Examiner notes that one measure of “a resistance to wear” is hardness itself. Since the coating disclosed by Sastri in view of Wong et al. is

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indeed harder than an example of a DLC, it has a higher resistance to wear. Likewise, a blade which doesn't wear as quickly as another also has a longer lifetime of use.

With regards to claims 1 and 19, Sastri fails to disclose the layer of Cr is ion implanted into the metal substrate.

Curry et al. teach it is old and well known in the art of cutting to ion implant a layer of Cr (column 4 lines 1-9). In light of Curry et al., it would have been well within one's technical grasp to have joined the first layer of Cr to the blade via ion implantation to make the blade tougher. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Sastri with ion implanting the first layer of Cr to the blade, as taught by Curry et al., because the substitution of one known element for another would have yielded predictable results and all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function and the combination would have yielded predictable results.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri in view of Wong et al. and Curry et al. as applied to claim 1 above, and further in view of Sanderson (3,838,512).

Sastri in view of Wong et al. and Curry et al. do not disclose a layer of Cr and a layer of CrN between the substrate and the layered pairs. Sanderson discloses a razor blade having a first layer of chromium to provided added strength and a second layer of a chromium based nitride which acts as better substrate for adhesion to following layers (column 7 lines 13-24). It would have been obvious to a person of ordinary skill in the

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art at the time the invention was made to provide a layer of chromium followed by a layer of chromium nitride before the stacked pairs of Sastri in view of Wong et al. and Curry et al. based on the teachings of Sanderson in order to provide a stronger razor that is a better substrate for adhesion of a following layer.

4. Claims 8, 12-14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri in view of Wong et al. and Curry et al. as applied to claims 1-3, 6, 7, and 9-11 above, and further in view of Grewal et al. (5,142,785)

Sastri in view of Wong et al. and Curry et al. (as applied to claim 1 above) does not disclose the blade being mounted in any sort of tool for shaving hair as is claimed in claim 8. Examiner notes that hand held razors are very common and well known in the art. The use of coated blades in the heads of these razors is also very well known in the art. Grewal et al. discloses mounting a coated razor blade in a shaver head (as shown in figure 1). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Sastri in view of Wong et al. and Curry et al. with mounting a coated blade in a head, as taught by Grewal et al., because all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function and the combination would have yielded predictable results.

With regards to claim 8, Sastri fails to disclose the layer of Cr is ion implanted into the metal substrate.

Curry et al. teach it is old and well known in the art of cutting to ion implant a layer of Cr (column 4 lines 1-9). In light of Curry et al., it would have been well within

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one's technical grasp to have joined the first layer of Cr to the blade via ion implantation to make the blade tougher. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Sastri with ion implanting the first layer of Cr to the blade, as taught by Curry et al., because the substitution of one known element for another would have yielded predictable results and all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function and the combination would have yielded predictable results.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri in view of Wong et al. and Curry et al. and further in view of Grewal et al. as applied to claims 8 above, and further in view of Sanderson.

The modified apparatus of Sastri does not disclose a layer of Cr and a layer of CrN between the substrate and the layered pairs. Sanderson discloses a razor blade having a first layer of chromium to provided added strength and a second layer of a chromium based nitride which acts as better substrate for adhesion to following layers (column 7 lines 13-24). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a layer of chromium followed by a layer of chromium nitride before the stacked pairs of the modified blade of Sastri based on the teachings of Sanderson in order to provide a stronger razor that is a better substrate for adhesion of a following layer.

Response to Arguments

6. Applicant's arguments with respect to claims 1-3, 5-14, and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Daniel Prone whose telephone number is (571)272-4513. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer D. Ashley can be reached on (571)272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

30 June 2010

/Jason Daniel Prone/

Primary Examiner, Art Unit 3724